

IN THE CLAIMS

Please Amend claims 1 and 7-14 as follows:

1. (Currently Amended) A radiator system, comprising:
 - a high-temperature body being a thermal source;
 - a receiver with the high-temperature body boarded thereon, the receiver receiving heat from the high-temperature body; and
 - a thermal buffer interposed at least between the high-temperature body and the receiver to buffer thermal transmission from the high-temperature body to the receiver;
 - whereby the heat from the high-temperature body is radiated by the receiver or is radiated by way of the receiver;
 - wherein the thermal buffer ~~comprises a high thermal conductor, and is a cladding material in which at least a part of~~ a low expander disposed at a position facing the high-temperature body ~~and buried in the~~ ~~is surrounded by~~ a high thermal conductor; and
 - the thermal buffer has a first bonding area with respect to the high-temperature body, and a second bonding area with respect to the receiver, the second bonding area being enlarged greater than the first bonding area, and
the width of at least one side of region which is occupied by the low expander in the thermal buffer is narrower than the width of the high-temperature body.
2. (Original) The radiator system set forth in claim 1, wherein said thermal buffer comprises the low expander buried in said high thermal conductor and having an outer surface surrounded by the high thermal conductor.

Serial No. 10/615,432
Response dated July 23, 2004
Reply to Office Action of May 4, 2004

Docket No. 5000-5108

3. (Original) The radiator system set forth in claim 1, wherein the low expander comprises a material whose linear expansion coefficient is smaller than that of said high-temperature body.

4. (Original) The radiator system set forth in claim 1, wherein the low expander comprises an invar alloy.

5. (Original) The radiator system set forth in claim 1, wherein the high thermal conductor comprises a pure metal or alloy whose major component is copper (Cu) or aluminum (Al).

6. (Original) The radiator system set forth in claim 1, wherein said receiver comprises a metallic body with a metallic material base.

7. (Currently Amended) A radiating method for radiating heat from a high-temperature body being a thermal source by a receiver with the high-temperature body boarded thereon, the receiver receiving the heat from the high-temperature body, or radiating the heat by way of the receiver, the radiating method comprising the step of:

preparing a thermal buffer interposed at least between the high-temperature body and the receiver to buffer thermal transmission from the high-temperature body to the receiver,

wherein the thermal buffer ~~comprises a high thermal conductor, and is a~~
~~cladding material in which at least a part of a low expander disposed at a position facing the high-~~
~~temperature body and buried in the~~ is surrounded by a high thermal conductor; and

the thermal buffer has a first bonding area with respect to the high-temperature body, and a second bonding area with respect to the receiver, the second bonding area being enlarged greater than the first bonding area, and

the width of at least one side of region which is occupied by the low expander in the
thermal buffer is narrower than the width of the high-temperature body.

8. (Currently Amended) A thermal buffer interposed at least between a high-temperature body being a thermal source and a receiver with the high-temperature body boarded thereon, the receiver receiving heat from the high-temperature body, to buffer thermal transmission from the high-temperature body to the receiver,

wherein the thermal buffer ~~comprises a high thermal conductor, and is a~~
~~cladding material comprising a low expander disposed at a position facing the high-temperature body~~
~~and buried in the high thermal conductor, and a high thermal conductor surrounding at least a part~~
~~of the low expander; and~~

the thermal buffer has a first bonding area positioned with respect to the high-temperature body, and a second bonding area positioned with respect to the receiver, the second bonding area being enlarged greater than the first bonding area, and

the width of at least one side of region which is occupied by the low
expander in the thermal buffer is narrower than the width of the high-temperature body.

9. (Currently Amended) A semiconductor module, comprising:

a semiconductor device being a thermal source;
a substrate with the semiconductor device boarded thereon; and

a heat spreader interposed between the semiconductor device and the substrate to diffuse heat from the semiconductor device to the substrate;

wherein the heat spreader ~~comprises a high thermal conductor, and is a~~
cladding material in which at least a part of a low expander disposed at a position facing the semiconductor device ~~and buried in the~~ is surrounded by a high thermal conductor; and

the heat spreader has a first bonding area between the heat spreader and the semiconductor device and with respect to the semiconductor device, and a second bonding area between the heat spreader and the substrate and with respect to the substrate, the second bonding area being enlarged greater than the first bonding area, and

the width of at least one side of region which is occupied by the low expander in
the heat spreader is narrower than the width of the semiconductor device.

10. (Currently Amended) A heat spreader interposed between a semiconductor device being a thermal source and a substrate with the semiconductor device boarded thereon to diffuse heat from the semiconductor device to the substrate,

wherein the heat spreader ~~comprises a high thermal conductor, and is a~~
cladding material comprising a low expander disposed at a position facing the semiconductor device ~~and buried in the high thermal conductor, and a high thermal conductor surrounding at least a part of the low expander;~~ and

the heat spreader has a first bonding area between the heat spreader and the semiconductor device and with respect to the semiconductor device, and a second bonding area between the heat spreader and the substrate and with respect to the substrate, the second bonding area being enlarged greater than the first bonding area, and

the width of at least one side of region which is occupied by the low expander in the heat spreader is narrower than the width of the semiconductor device.

11. (Currently Amended) A semiconductor module, comprising:

a semiconductor device being a thermal source;
a heatsink receiving heat from the semiconductor; and
a substrate having opposite surfaces, bonded to the semiconductor device
on one of the opposite surfaces, and bonded to the heatsink on the other one of the opposite
surfaces to transmit the heat from the semiconductor device to the heatsink;
wherein the substrate ~~comprises a high thermal conductor, and is a~~
cladding material in which at least a part of a low expander disposed at a position facing the
semiconductor device ~~and buried in the~~ is surrounded by a high thermal conductor; and
the substrate has a first bonding area between the substrate and the
semiconductor device and with respect to the semiconductor device, and a second bonding area between
the substrate and the heatsink and with respect to the heatsink, the second bonding area being enlarged
greater than the first bonding area, and
the width of at least one side of region which is occupied by the low expander in
the substrate is narrower than the width of the semiconductor device.

12. (Currently Amended) A substrate having opposite surfaces, bonded to a
semiconductor device being a thermal source on one of the opposite surfaces, and bonded to a
heatsink receiving heat from the semiconductor device on the other one of the opposite surfaces to
transmit the heat from the semiconductor device to the heatsink,

wherein the substrate ~~comprises a high thermal conductor, and is a~~
cladding material comprising a low expander disposed at a position facing the semiconductor device ~~and buried in~~
~~the high thermal conductor, and a high thermal conductor surrounding at least a part of the low~~
expander; and

the substrate has a first bonding area between the substrate and the
semiconductor device and with respect to the semiconductor device, and a second bonding area between

the substrate and the heatsink and with respect to the heatsink, the second bonding area being enlarged greater than the first bonding area, and

the width of at least one side of region which is occupied by the low expander in the substrate is narrower than the width of the semiconductor device.

13. (Currently Amended) A semiconductor module, comprising:

a substrate being a thermal source;

a heatsink receiving heat from the substrate; and

a heat spreader having opposite surfaces, bonded to the substrate on one of the opposite surfaces, and bonded to the heatsink on the other one of the opposite surfaces to transmit the heat from the substrate to the heatsink;

wherein the heat spreader ~~comprises a high thermal conductor, and is a cladding material in which at least a part of a low expander disposed at a position facing the substrate and buried in the is surrounded by a high thermal conductor; and~~

the heat spreader has a first bonding area between the heat spreader and the substrate and with respect to the substrate, and a second bonding area between the heat spreader and the heatsink and with respect to the heatsink, the second bonding area being enlarged greater than the first bonding area, and

the width of at least one side of region which is occupied by the low expander in the heat spreader is narrower than the width of the substrate.

14. (Currently Amended) A heat spreader having opposite surfaces, bonded to a substrate being a thermal source on one of the opposite surfaces, and bonded to a heatsink receiving heat from the substrate on the other one of the opposite surfaces to transmit the heat from the substrate to the heatsink,

Serial No. 10/615,432
Response dated July 23, 2004
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Docket No. 5000-5108

wherein the heat spreader comprises a high thermal conductor, and is a cladding material comprising a low expander disposed at a position facing the semiconductor device and buried in the high thermal conductor, and a high thermal conductor surrounding at least a part of the low expander; and

the heat spreader has a first bonding area between the heat spreader and the substrate and with respect to the substrate, and a second bonding area between the heat spreader and the heatsink and with respect to the heatsink, the second bonding area being enlarged greater than the first bonding area, and

the width of at least one side of region which is occupied by the low expander in the heat spreader is narrower than the width of the substrate.

Please Add new claims 15 and 16.

15. (New) The radiator system set forth in claim 1, wherein the low expander is solid on at least a part facing the high-temperature body.

16. (New) The radiator system set forth in claim 1, wherein the low expander is exposed on at least one side of the high-temperature body-side or the receiver-side of the thermal buffer.